

AUG 16 2011

Dr. Nancy Grossman, Director
Environment, Safety and Health
Fermilab
P.O. Box 500
Batavia, IL 60510

Dear Dr. Grossman:

SUBJECT: FERMI SITE OFFICE REVIEW OF HAZARDOUS WASTE
TRANSPORTATION PRACTICES

The Fermi Site Office has completed a review of Fermilab transportation practices associated with shipping hazardous waste. DOE Order 460.2A requires that FSO review hazardous material transportation practices every three years. This review included field observations and a records review in 2011.

We are please to convey the following conclusions:

- 1) Fermilab has a robust system for managing the generation, pickup, storage, packaging, and shipping processes for hazardous waste;
- 2) The Hazard Control Technology (HCT) Team complied with U.S. Department of Transportation, U.S. Environmental Protection Agency, and Fermilab internal requirements and protocols governing packaging, labeling, and shipping hazardous waste;
- 3) HCT Team personnel responsible for hazardous waste shipments are knowledgeable about hazardous waste shipments and requirements; and
- 4) The HCT Team members evaluate, understand, and take precautions against safety and security hazards associated with handling, packaging, and shipping hazardous waste.

I would like to convey our appreciation and sincere thanks to the entire Hazard Control Technology Team for their support, assistance, and continued excellence respecting waste management. As you know, this functional area is critical for Fermilab's mission and success. Please keep this office fully informed as to the continued efforts of Fermi Research Alliance, Inc. and/or Fermilab to self assure performance in this area in the future. It is our hope that your self assurance will allow us to minimize our review in the future.

AUG 16 2011

Dr. Nancy Grossman

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If you have any questions, please contact Sally Arnold on extension 2239.

Sincerely,

*Original Signed by
Mark E. Bollinger
Deputy Manager*

Michael J. Weis
Site Manager

Enclosure:

FSO Hazardous Material Transportation Review

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**Department of Energy Fermi Site Office
Operational Awareness Review
Hazardous Waste Transportation
August 12, 2011**

Introduction

The Department of Energy (DOE) Fermi Site Office (FSO) performed a functional and records review of Fermilab Hazardous Waste (HW) shipment practices. FSO performed the review as part of its oversight function (DOE Order 226.1A, "Implementation of DOE Oversight Policy") and to address requirements in DOE Order 460.2A, "Departmental Materials Transportation and Packaging Management". DOE O 460.2A requires that DOE Facility Managers evaluate contractor compliance with transportation and packaging requirements every 3 years.

This review consisted of two aspects:

Field Observations: On February 22, 2011, FSO observed the Fermilab Hazard Control Technology Team (HCT Team) supervise personnel from a subcontracting agent, Clean Harbors Environmental Services, Inc. (EPA I.D. # MAD039322250) as they prepared chemical waste lab packs and drummed bulk waste for shipment to a Clean Harbors El Dorado, LLC disposal facility (EPA I.D. # ARD069748192) in El Dorado, Arkansas. The purpose was to observe the shipping procedures for compliance with U.S. Department of Transportation Federal Motor Carrier regulations at 49 CFR Parts 171 through 179, U.S. Environmental Protection Agency hazardous waste transportation regulations at 40 CFR Part 263, and Fermilab internal hazardous waste management procedures.

On the day of shipment, personnel from Clean Harbors Environmental Services packed the wastes into drums and containers. They also prepared required inventories (packing lists) of lab pack container contents, shipping labels, Uniform Hazardous Waste Manifests, and Land Disposal Restriction (LDR) forms to accompany the shipment. Fermilab retained copies. Once the documentation and packing were complete, Clean Harbors Environmental Services loaded the waste containers onto the truck and transported them offsite.

Shipping Document Review: FSO also reviewed shipment documentation for the February 22, 2011 shipment and six additional hazardous waste shipments from the second half of 2010. The purpose was to verify the documentation of shipment preparation processes, shipment record content, and record completeness. Descriptions of the shipments reviewed appear in Table 1.

Field Observations

As a matter of routine DOE oversight, FSO periodically observes the HCT Team waste management practices. The purpose is to understand the operation and verify that the applicable management mechanisms are functioning, comply with applicable regulatory requirements, and are implemented safely.

For purposes of this review, FSO randomly selected one shipment (February 22, 2011) and attended its loading into a commercial van for transport to the Clean Harbors Stoney Island transfer facility in Chicago, IL (EPA I.D. # ILD000608471). There, personnel would ultimately segregate the drummed waste according to content for shipment to the Clean Harbors El Dorado incinerator.

The Fermilab HCT Team segregated and prepared small, individual waste packages for shipment prior to pickup by Clean Harbors Environmental Services. Doing so enabled Clean Harbors Environmental Services personnel to concentrate on packing the smaller, compatible waste packages into larger drums and containers for shipment. Clean Harbors Environmental Services labeled all shipping containers. HCT Team personnel surveyed each individual shipping container for radiological activity prior to Clean Harbors Environmental Services loading it onto the truck.

FSO observed shipping paper preparation by the HCT Team and by Clean Harbors for this shipment and interviewed personnel about the required documentation. The document discussion appears in the next section of this report.

The shipment weight was below the threshold (1000 pounds) at which the U.S. Department of Transportation requires the load of hazardous waste to be placarded; consequently, a truck placard was unnecessary for this shipment. Clean Harbors Environmental Services ultimately transported the load of 34 containers of lab pack chemicals from Fermilab to the El Dorado incinerator.

FSO observed no regulatory compliance violations, safety hazards or unsafe practices during this shipment operation.

Shipping Document Review

The Fermilab HCT Team maintains a document record for each waste shipment. FSO reviewed this document record for the shipment dated 2/22/2011 and for six additional shipments completed in the second half of 2010 (Table 2). The results follow:

1. Fermilab Hazardous Waste Storage Facility Pre-Shipment Checklist

The HCT Team prepares this checklist to document the shipping date as well as the quantity and types of waste containers in the shipment and shipment destination. The checklist records the

Uniform Hazardous Waste Manifest numbers and Fermilab Material Move Request number. The checklist also records that the Fermilab HCT Team has completed the following pre-shipment steps:

- a. Inspect all containers and attach required shipping labels (49 CFR Part 172, Subpart G);
- b. Complete vehicle safety inspection prior to loading;
- c. Sign generator's notification for land-banned waste or certification for waste meeting applicable treatment standards (40 CFR 268.7(a)(1) and (2));
- d. Perform radiation survey of all waste;
- e. Complete a Compliance Status Inquiry for the intended Treatment, Storage, and/or Disposal Facility;
- f. Complete Uniform Hazardous Waste Manifest or Bill of Lading (40 CFR Part 262);
- g. When required, complete a Hazardous Material Shipment Information Form and provide copies of emergency response guides to the Fermilab Communication Center prior to releasing waste for off-site transport. [Both Clean Harbors Environmental Services and Safety Kleen supply their own emergency response phone number on the Uniform Hazardous Waste Manifest, so this step is not necessary for loads going to their facilities]. (40 CFR Part 262; 49 CFR Part 172);
- h. Offer the transporter any appropriate placards for the shipment (49 CFR Part 172, Subpart F);
- i. Record the transporter's contact information;
- j. Verify that the transporter has signed the Fermilab Material Move request.

The checklist also records the following post-shipment steps for hazardous wastes:

- a. Send completed Material Move request to the Fermilab Transportation Services department for inclusion in the shipment record database;
- b. Send the Uniform Hazardous Waste Manifest to the appropriate regulatory agency;
- c. Receive signed copy of the Uniform Hazardous Waste Manifest from the destination facility and document/attach any resolution of discrepancies noted.

Finally, the checklist also documents a variety of steps taken for other-than-hazardous waste shipments that are out of scope for this report. The Fermilab HCT Team member responsible for the check list signs and dates it upon completion. This record remains with the completed shipment file.

This checklist was completed for all of the seven hazardous waste loads reviewed.

2. Fermilab Hazard Control Technology Team Security Check Sheet for Placarded Shipments of Hazardous Material (HCTT Form #07)¹

This internal Security Check Sheet notes actions taken by Fermilab to verify the identity and qualifications of drivers assigned to transport Fermilab hazardous material loads (including hazardous waste). The check sheet records the shipment number and date shipped. It also documents that Fermilab, prior to shipment pickup, has requested and received the names of the drivers and/or chemists that will be entering the laboratory; verified their United States citizenship; acquired a copy of the driver's Commercial Driver's License with hazardous materials endorsement; performed a safety/security inspection of the outgoing shipment; and verified that tracking and/or voice communication is available for all carriers. A qualified HCT Team member or Fermilab transportation staff must initial and date each step.

The Security Check Sheet was completed for five of the seven hazardous waste loads reviewed (the Clean Harbors loads only). Fermilab completes this document only for exclusive-use² shipments or for placarded loads. Since the two Safety Kleen loads could potentially involve waste pickups from other generators, the Fermilab Security check sheet is not used for those loads.

A copy of the driver's Commercial Driver's License was in the record for all five of the exclusive-use hazardous waste loads reviewed (Clean Harbors loads #s 1, 2, 4, 6, and 7). The Fermilab Security Check Sheet, if used for an exclusive-use transporter, requires collection of this information.

3. Uniform Hazardous Waste Manifest

The Hazardous Waste Manifest System is a set of forms, reports, and procedures designed to track hazardous waste from the generator facility to the off-site waste management facility that will store, treat, or dispose of the hazardous waste. The system allows the waste generator to verify that its waste has been properly delivered, and that no waste has been lost or unaccounted for in the process.

The Uniform Hazardous Waste Manifest (EPA Form 8700-xx) is the form used by all generators who transport or offer for transport hazardous waste to track the waste. Currently, the manifest is a paper document containing multiple copies of a single form. When completed, it contains information on the type and quantity of the waste being transported, instructions for handling the waste, and signature lines for all parties involved in the disposal process.

Both the Department of Transportation and EPA require the manifest. Each party that handles the waste signs the manifest and retains a copy. This documentation ensures critical accountability in the transportation and disposal processes. Once the waste reaches its

¹ HCTT: Hazard Control Technology Team

² "Exclusive use" means a load dedicated to a Fermilab shipment.

destination, the receiving facility returns a signed copy of the manifest to the generator, confirming that the waste has been received by the designated facility.

The fully signed Uniform Hazardous Waste Manifest(s) were completed for each of the seven loads reviewed.

4. Container Packing List

Clean Harbors Environmental Services prepares a Container Packing List for lab packs it ships. The list itemizes the smaller waste packages within each shipping drum or container. Fermilab retains a copy for its records, and a copy accompanies the shipment to its destination.

Of the seven shipments reviewed, one Clean Harbors load and two Safety Kleen loads shipped drummed liquid and did not need or include a packing list.

Four of four Clean Harbors lab pack shipments included the packing list.

5. Land Disposal Restriction Notification Form

The Resource Conservation and Recovery Act requires a measure of protection from threats to the land posed by hazardous waste disposal by implementing Land Disposal Restrictions (40 CFR Part 268). EPA intends that these restrictions prevent hazardous waste from being placed on the land until the waste meets specific treatment standards to reduce the mobility or toxicity of the hazardous constituents in the waste.

Hazardous waste generators must notify hazardous waste treatment/storage/disposal facilities if a waste contains hazardous constituents subject to the Land Disposal Restrictions. The Land Disposal Restriction Notification Form tracks the Uniform Hazardous Waste Manifest number and ties it to the regulated EPA waste categories subject to Land Disposal Restrictions. This notification accompanies a waste shipment and tells the treatment/storage/disposal facility whether the waste is subject to treatment prior to land disposal.

Documentation for seven of seven loads reviewed contained the Land Disposal Restriction Notification Form.

6. Fermilab Material Move Request

At Fermilab, a "Material Move Request Form" must accompany virtually all materials shipped (moved), whether inside or outside the lab. The form documents all shipments for Fermilab's Transportation Department. HCT Team personnel must complete the uniquely-numbered form, which describes personnel contact information, the material to be moved, whether it is radioactive, and its destination. Signatures are required from the requestor, the authorized surveyor (for radiation), and if indicated, the offsite transporter or vendor.

Documentation for seven of the seven waste loads reviewed contained the completed and signed Material Move Request form, in conformance with Fermilab procedure.

Observations

1. FSO observed no unsafe practices during oversight observations associated with shipping the hazardous waste lab pack load on February 22, 2011.
2. FSO observed no regulatory violations in the recordkeeping reviewed.
3. Documentation packages for the loads reviewed appeared to be complete.
4. The subcontractor personnel observed for the February 22, 2011 hazardous waste shipment appeared to be skilled in their packaging and documentation duties.

Conclusions

1. Fermilab has a robust system for managing the generation, pickup, storage, packaging, and shipping processes for hazardous waste.
2. The HCT Team complied with U.S. Department of Transportation, U.S. EPA, and Fermilab internal requirements and protocols governing packaging, labeling, and shipping hazardous waste.
3. HCT Team personnel responsible for hazardous waste shipments are knowledgeable about hazardous waste shipments and requirements.
4. The HCT Team members evaluate, understand, and take precautions against safety and security hazards associated with handling, packaging, and shipping hazardous waste.

Findings

None.

Table 1. Document Packages Reviewed for Hazardous Waste Shipments (July 2010-February 2011)

Shipment #	Uniform Hazardous Waste Manifest Number	Shipment Date	Waste Description	Hazardous Waste and DOT Labels	Destination
1	004489788 FLE 004489789 FLE 004489790 FLE	2/22/2011	Miscellaneous Drums & Lab Packs	Toxic, Flammable, Non-Flammable Gas, Corrosive, Flammable Solid, Poison	Clean Harbors El Dorado, LLC 309 American Circle El Dorado, AR 71730
2	003942192 FLE 003942193 FLE 003942194 FLE 003942195 FLE 000036496 MWI	12/20/2010	Miscellaneous Drums and Lab Packs	Hazardous, PCB, Flammable, Corrosive/Class 9*, Flammable Solid, Poison	Clean Harbors El Dorado, LLC 309 American Circle El Dorado, AR 71730
3	003628370 FLE	12/09/2010	Safety Kleen Solvent/Used Oil Filters	Hazardous Waste, Class 9	Safety Kleen Systems, Inc. Elgin, IL 60120
4	003430135 FLE 003430136 FLE 003430137 FLE	9/20/2010	Miscellaneous Drums and Lab Packs	Flammable, Corrosive, Poison, Flammable Solid, Class 9	Clean Harbors El Dorado, LLC 309 American Circle El Dorado, AR 71730
5	000374362 CEX	8/19/2010	Parts Washer Solvent/Oil Filters	Non-Hazardous, Hazardous	Safety Kleen Systems, Inc. Elgin, IL 60120
6	003494998 FLE	7/19/2010	Hazardous Waste Lab Pack	Corrosive	Clean Harbors El Dorado, LLC 309 American Circle El Dorado, AR 71730
7	003034988 FLE	7/12/2010	Miscellaneous Drums and Lab Packs	Corrosive, Flammable Liquid, Flammable Solid	Clean Harbors El Dorado, LLC 309 American Circle El Dorado, AR 71730

*Class 9: U.S. Department of Transportation classification for Miscellaneous Hazardous Materials (Federal Motor Carrier Safety Regulations, 49 CFR 173)

Table 2. Hazardous Waste Shipment Document Review Summary (July 2010 – February 2011)

Shipment #	Date	Transporter	Pre-Shipment Checklist	Uniform Hazardous Waste Manifest Numbers	Land Disposal Restriction Notification Form	Clean Harbors Container Packing List (<i>for lab pack loads only</i>)	Fermilab Security Check Sheet	Material Move Request
	2/22/2011	Clean Harbors	√*	004489788 FLE 004489789 FLE 004489790 FLE	√	1	√	√
2	12/20/2010	Clean Harbors	√	003942192 FLE 003942194 FLE 000036496 MWI	√	√	√	√
3	12/9/2010	Safety Kleen	√	003628270 FLE	√	NA	NA	√
4	9/20/2010	Clean Harbors	√	003430135 FLE 003430136 FLE 003430137 FLE	√	√	√	√
5	8/19/2010	Safety Kleen	√	000374362 CEX	√	NA	NA	√
6	7/19/2010	Clean Harbors	√	003494998 FLE	√	NA	√	√
7	7/12/2010	Clean Harbors	√	003034988 FLE 003034989 FLE 003034990 FLE	√	√	√	√

*√: Completed documentation on file.

NA: The Packing List and Security Check Sheet are not applicable for drummed liquids.